

XIX.—A Revision of the Flat-fishes (HETEROSOMATA) of Natal,

by

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THE Flat-fishes differ from all other fishes in having both eyes on the same side of the head. The scheme of classification given below differs slightly from mine of 1910 (Ann. Mag. Nat. Hist. [8], VI, pp. 484–496) in the recognition of the Pleuronectoidea and Soleoidea as equal in rank to the Psettodoidea and in making *Paralichthodes* the type of a new family. Specimens of this interesting genus now received from Durban have enabled me to examine its structure and it proves to be unique amongst dextral Pleuronectoidea in the structure of the nasal organ, which is like that of the sinistral Pleuronectoidea and of *Psettodes* and the Soles.

ORDER HETEROSOMATA.

SUB-ORDER 1. PSETTODOIDÆ.

Psettodes. W. Africa; Indo-Pacific.

SUB-ORDER 2. PLEURONECTOIDÆ.

Family 1. BOTHIDÆ.

Sub-family 1. PARALICHTHINÆ. Tropical and Temperate Seas.

„ 2. BOTHINÆ. Tropical and Temperate Seas.

„ 3. PSETTINÆ. N. Atlantic.

Family 2. PARALICHTHODIDÆ.

Paralichthodes. S. Africa.

(205)

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Family 3. PLEURONECTIDÆ.

Sub-family 1. PLEURONECTINÆ. Northern Seas, with three genera from the Indo-Pacific.

„ 2. SAMARINÆ. Indo-Pacific.

„ 3. RHOMBOSOLEINÆ. South Australia ; New Zealand ; Patagonia.

SUB-ORDER 3. SOLEOIDEA.

Family 1. SOLEIDÆ. Tropical and Temperate Seas.

Family 2. CYNOGLOSSIDÆ. Tropical and Temperate Seas.

The Paralichthinae, Bothinae, Paralichthodidae, Soleidae and Cynoglossidae are represented on the coast of Natal.

ORDER HETEROSOMATA.

SUB-ORDER PLEURONECTOIDEA.

Dorsal fin extending forward on head. Mouth terminal ; lower jaw prominent. Præoperculum with free margin.

Family 1. BOTHIDÆ.

Eyes on the left side.

In all five genera represented in Natal waters the mouth is nearly symmetrical, and the lateral line has a strong curve anteriorly.

Synopsis of Genera.

I. Pelvic fins equal, short-based. (PARALICHTHINÆ).

Mouth moderate or large ; eyes separated by a ridge ; lateral line developed on both sides.

Pelvic fins symmetrical ; teeth universal.

1. PSEUDORHOMBUS.

Left pelvic fin median, right lateral ; teeth pluri-serial.....2. PARACITHARUS.

II. Left pelvic fin median, with base much longer than that of right. (BOTHINÆ).

Mouth rather small ; interorbital region concave ; lateral line on left side only ; teeth equal, uni- or bi-serial.

Gill-opening extending upwards to lateral line ; scales large.....3. ENGYPROSOPON.

Gill-opening ending a short distance above pectoral fin ; scaling of head and body continuous below lateral line ; scales large....4. CROSSORHOMBUS.

Gill-opening ending a short distance above pectoral fin ; membrane connecting operculum with shoulder scaleless ; scales small.....5. BOTHUS.

1. PSEUDORHOMBUS.

Pseudorhombus, Bleek., C.R. Acad. Amsterdam, XIII, 1862, Pleuron. p. 5.

Eyes on the left side, separated by a ridge. Mouth moderate or rather large ; teeth in jaws conical, pointed, uniserial ; palate toothless. Gill membranes united. Dorsal fin originating above posterior nostril of blind side. Pelvic fins short-based, symmetrical. Scales small or of moderate size, ctenoid on left side. Lateral line developed on both sides, with a strong curve anteriorly and with an accessory branch running upwards to or towards the eighth to eleventh ray of dorsal fin.

Several species from the Indo-Pacific ; two known from Natal.

1. PSEUDORHOMBUS RUSSELLI.

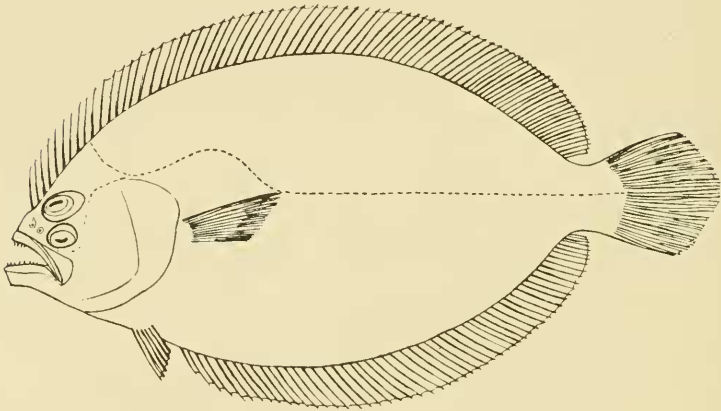
Pseudorhombus russelli (Gray), Günth. Cat. Fish. IV, p. 424 (1862); Bleek., Atl. Ichth. VI, p. 6, Pleuron. pl. ii, fig. 2 (1866).

Pseudorhombus arsius (Ham. Buch.) Day, Fish. Ind., p. 423, pl. xci, fig. 5 (1878).

Pseudorhombus andersoni, Gilchr., Mar. Inv. S. Afr., III, 1905, p. 9, pl. xxvi.

Depth of body $1\frac{3}{4}$ to 2 in the length, length of head $3\frac{1}{2}$ to $3\frac{3}{4}$. Diameter of eye 4 (young) to $5\frac{1}{2}$ in length of head. Maxillary extending to below middle (young) or posterior part of eye. On each

TEXT-FIG. 1.



PSEUDORHOMBUS RUSSELLI.

side 2 or 3 strong anterior teeth in upper jaw and a series of 5 or more enlarged teeth in lower. Dorsal 70-81. Anal 54-61. Scales ctenoid on left side, cycloid on right, 74 to 85 in a longitudinal series. Accessory branch of lateral line reaching base of eighth to eleventh ray of dorsal fin. Body usually with spots and rings; often a conspicuous dark spot surrounded by a ring of white dots at beginning of straight part of lateral line; fins spotted.

Total length 250 mm.

E. Africa to the Pacific.

P. andersoni, is evidently based on an ambicolorate example of this species. Complete ambicoloration in Flat-fishes is usually correlated with other variations towards symmetry, such as the delayed or arrested migration of the eye, which interrupts the extension forward of the dorsal fin, and the similar structure of the scales on both sides of the fish.

2. PSEUDORHOMBUS NATALENSIS.

Pseudorhombus natalensis, Gilchr., Mar. Inv. S. Afr., III, 1905, p. 8, pl. xxv.

Depth of body 2 in the length, length of head $3\frac{3}{4}$. Diameter of eye $3\frac{1}{2}$ in length of head. Maxillary extending to below anterior $\frac{1}{3}$ of eye. Teeth small, forming a close set series in the jaws. Dorsal 70. Anal 52. Scales ctenoid on left side, cycloid on right, 60 in a longitudinal series. Accessory branch of lateral line extending only a little more than half way to dorsal fin. Large dark ring-shaped spots symmetrically arranged on body: a series of conspicuous spots along dorsal and anal fins.

Natal.

Here described from a specimen of 135 mm. from off Cape Natal, 54 fathoms (Gilchrist).

2. PARACITHARUS, gen. nov.

(type ARNOGLOSSUS MACROLEPIS, Gilchr.).

Eyes on the left side, separated by a ridge. Mouth wide; teeth small, pointed, in bands in the jaws; no canines; palate toothless. Gill-membranes separate. Dorsal fin originating immediately behind right posterior nostril, which is large and is covered by a valve that extends forward nearly to the mouth. Pelvic fins short-based; left median in position. Scales of moderate size, ctenoid on left side, cycloid on the right; lateral line developed on both sides, with a strong curve anteriorly; tubules forked, Y- or T-shaped.

Citharus, Bleek., with a single species from the Mediterranean, differs from *Paracitharus* especially in the dentition; the teeth in the jaws are uniserial except anteriorly, canines are well developed and the vomer is toothed. Also in *Citharus* the dorsal originates below the posterior nostril and the lateral line tubules are simple.

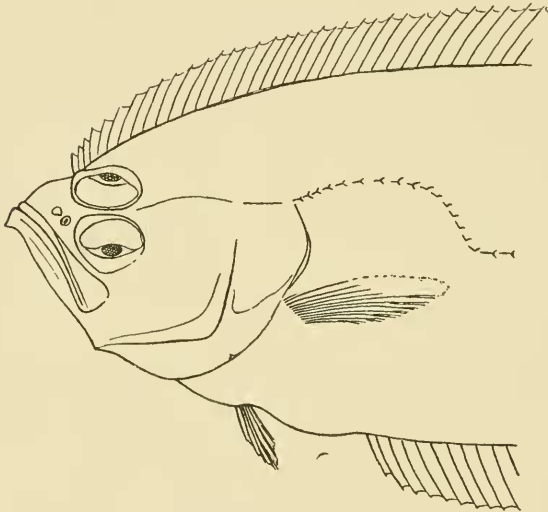
PARACITHARUS MACROLEPIS.

Arnoglossus macrolepis, Gilchr. Mar. Inv. S. Afr. III, 1905, p. 12, pl. xxxi.

Depth $2\frac{1}{2}$ in length, length of head $3\frac{1}{3}$. Diameter of eye $4\frac{1}{2}$ in length of head. Lower jaw prominent; maxillary extending a little beyond middle of eye. 43 (47) scales in lateral line, to base of caudal. Dorsal 69 (72). Anal 47 (50). Left pectoral a little more, right a little less than $\frac{1}{2}$ length of head. Caudal rounded or doubly truncate. A blackish spot at base of last dorsal rays; a similar one at end of anal. Natal.

Here described from a specimen of 195 mm. taken 22 miles N. of the mouth of the Tugela at a depth of 63-73 fathoms.

TEXT-FIG. 2.



PARACITHARUS MACROLEPIS.

3. ENGYPROSOPON, Günth.

Cat. Fish. IV, p. 431 (1862).

Scaeops, Jord. and Starks, Bull. U.S. Fish. Comm. XXII, p. 627 (1904).

Eyes on the left side; interorbital region concave. Mouth small; teeth in jaws small, pointed, uni- or bi-serial; palate toothless. Gill-

membranes united; gill-opening extending upwards to lateral line. Dorsal fin originating in advance of eye. Left pelvic fin median, with long base; right lateral, base shorter. Scales large, rather weakly ctenoid on left side, cycloid on right. Lateral line with a strong curve anteriorly.

Several species from the Indo-Pacific; one from Natal.

ENGYPROSOPON NATALENSIS, sp. nov.

Depth of body 2 in the length, length of head $3\frac{3}{4}$. Diameter of eye $3\frac{1}{2}$ in length of head and 3 times interorbital width. Maxillary extending to below anterior $\frac{1}{3}$ of eye; lower jaw $\frac{1}{2}$ length of head. Teeth uniserial. 6 gill-rakers on lower part of anterior arch. Dorsal 85. Anal 64. Left pectoral $\frac{3}{5}$ right $\frac{2}{5}$ length of head. 40 scales in a longitudinal series. Traces of small dark spots on the fins.

Described from a female 76 mm. in total length; a male of 55 mm. has a spine on the snout, interorbital width $\frac{1}{2}$ diameter of eye, pectoral fins as in the female.

Natal, off mouth of Amatikulu River; depth 26 to 27 fathoms.

E. latifrons, Regan, (Trans. Linn. Sec. XII, 1908, p. 233 pl. xxv, fig. 3) from the Indian Ocean, is very near *E. natalensis*, but has the interorbital region broader ($\frac{2}{3}$ diameter of eye in a female of 75 mm.). There are other closely related species, including the Japanese *E. grandisquama*, Schleg., under which name this species has been recorded from Natal.

4. CROSSORHOMBUS, gen. nov.

(type PLATOPHRYS DIMORPHUS, Gilchr.).

Eyes on the left side; interorbital region concave. Mouth small; teeth small, pointed, uniserial in the jaws; palate toothless. Gill-membranes united; upper angle of gill-opening a short distance above pectoral fin; scaling of head and body continuous below lateral line. Dorsal fin originating in advance of eye. Left pelvic fin median, with long base; right lateral, base shorter. Scales large, strongly ciliated on left side, weakly ciliated or cycloid on right. Lateral line developed on both sides, with a strong curve anteriorly.

One species from Natal.

Scacops kobensis, Jord. and Starks, from Japan, and *Engyprosopon xenandrus*, Gilbert, from Hawaii, belong to this genus.

CROSSORHOMBUS DIMORPHUS.

Platophrys dimorphus, Gilchr. Mar. Inv. S. Afr. III, 1905, p. 10, pl. xxvii.

Depth of body $1\frac{3}{4}$ to 2 in length, length of head 4. Diameter of eye $3\frac{1}{2}$ in length of head, less (male) or greater (female) than inter-orbital width. Snout short; mouth small; maxillary not or barely reaching vertical from anterior edge of eye. Male with a spine on the snout and with spines on the orbital margins. Dorsal 85-88. Anal 68-72. Upper pectoral ray produced in adult male. 50 scales in a longitudinal series. Greyish, spotted with darker.

Natal; off mouth of Umblanga River: depth 22-26 fathoms.

Two specimens examined, 110 and 120 mm. in total length.

5. BOTHUS.

Bothus (Rafinesque, 1810), Kyle, Rep. Danish Ocean. Exped. II, A. 1 (1913), p. 94.

Platophrys, Swainson, Nat. Hist. II, p. 302 (1839).

Rhomboidichthys, Bleek. Act. Soc. Sci. Ned. Ind. I, 1856, Manado and Macassar, p. 67.

This genus differs from *Crossorhombus* only in the smaller scales and in having the membrane joining the operculum to the pectoral arch scaleless.

Mediterranean, Tropical Atlantic and Indo-Pacific.

One species from Natal.

BOTHUS PANTHERINUS.

Rhomboidichthys pantherinus (Rüpp. 1828), Günth. Cat. Fish. IV, p. 436 (1862).

Platophrys pantherinus, Bleek. Atl. Ichth. VII, p. 11, pl. cccxxxiii, fig. 3 (1866); Day, Fish. India, p. 425, pl. xcii, figs. 3, 4 (1878).

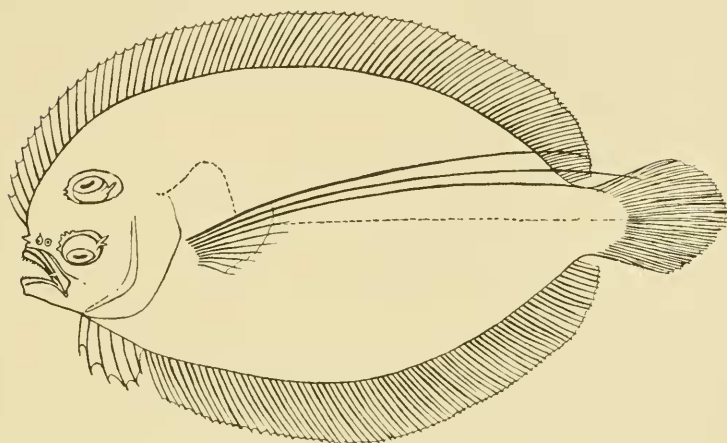
Depth of body $1\frac{3}{4}$ to 2 in the length, length of head $3\frac{1}{2}$ -4. Inter-orbital width nearly equal to diameter of eye (adult male), or less; eye $3\frac{1}{2}$ to 4 in length of head. Anterior profile of head convex. Maxillary extending to below anterior $\frac{1}{2}$ of eye. Males with rostral and supraocular spines. Dorsal 85-93. Anal 65-70. Pectoral, in

adult male, with the upper rays prolonged, even reaching the caudal fin. About 90 scales in a longitudinal series. Body with spots and rings ; often a large dark spot on lateral line.

Total length 200 mm.

East Africa to the Pacific.

TEXT-FIG. 3.



BOTHUS PANTHERINUS. ♂.

Family 2. PARALICHTHODIDÆ.

Eyes on the right side ; olfactory laminae arranged transversely to or radiating from a central rachis.

The absence of spinous fin-rays, the extension forward of the dorsal fin on the head, the emarginate urohyal, the absence of a supra-maxillary and of palatine teeth, show that *Paralichthodes* is a true Pleuronectoid ; but it differs from the Bothidae in having the eyes on the right side and from the Pleuronectidae in the arrangement of the olfactory laminae.

PARALICHTHODES.

Paralichthodes, Gilchr. Mar. Inv. S. Afr. II, 1904, p. 108.

Eyes on the right side. Mouth rather large, nearly symmetrical ; teeth small, pointed, in 2 or 3 series in the jaws ; palate toothless.

Gill-membranes separate. Dorsal fin extending forward on snout above nostrils of blind side. Pelvic fins short-based, symmetrical, the right nearly median and further forward than left. Scales small, cycloid. Lateral line developed on both sides, with a strong curve anteriorly. Left pelvic bone running upwards to cleithrum behind right; pectoral radials present; lower part of hypocoracoid slender. Vertebrae 31 (10 + 21); last five præcaudals with parapophyses, of which the last pair are connected by a bridge; caudal vertebrae without transverse apophyses.

A single species.

PARALICHTHODES ALGOENSIS.

Paralichthodes algoensis, Gilchr. Mar. Inv. S. Afr. II, 1904, p. 108, pl. viii.

Depth about $2\frac{1}{2}$ in the length, length of head 4 to $4\frac{1}{2}$. Diameter of eye $4\frac{1}{2}$ to 5 in length of head; interorbital width less than $\frac{1}{2}$ diameter of eye. Lower jaw strongly projecting; maxillary extending to below middle or posterior part of eye. Dorsal 72-74; anterior rays much branched. Anal 51-54. Right pectoral $\frac{3}{5}$, left $\frac{2}{5}$ length of head. Brownish or grayish, with small darker spots.

South Africa (Durban, Algoa Bay).

Three specimens, 180 to 250 mm. in total length.

SUB-ORDER SOLEOIDEA.

Dorsal fin extending forward on head. Preopercular margin not free. Mouth small: lower jaw not prominent; jaws of the blind side toothed, curved, jaws of the eyed side not or but feebly toothed.

Family 1. SOLEIDÆ.

Eyes on the right side.

Synopsis of the Genera.

I. Caudal fin free.....1. SOLEA.

II. Vertical fins continuous.

A. Both pectoral fins well developed, unconnected with opercular membrane.

Lower lip strongly fringed; anterior nostril of blind side surrounded by a fringed flap.

2. SYNAPTURA.

Lower lip not fringed; nostrils simple.

3. AUSTROGLOSSUS.

B. Pectoral fins small, especially on blind side; opercular membrane joined to upper edge of pectoral fin.

Scales ctenoid; first dorsal ray not enlarged.

4. ZEBRIAS.

Scales cycloid; first dorsal ray enlarged, free.

5. ÆSOPIA.

1. SOLEA.

Solea (part.), Günth. Cat. Fish. IV, p. 462 (1862).

Form oval or elongate. Scales small, ctenoid; lateral line straight, single. Dorsal and anal fins free from the caudal; pectorals well developed; pelvic fins equal, short-based. Nostrils of blind side not dilated.

Eastern Atlantic and Indian Ocean; one species from Natal.

SOLEA TURBYNEI.

Solea turbynei, Gilchr. Mar. Inv. S. Afr. III, 1905, p. 10, pl. xxviii.

Depth of body $2\frac{1}{5}$ to $2\frac{1}{3}$ in length, length of head 4 to $4\frac{1}{2}$. Eyes small, separated by a scaly interspace. Angle of mouth below middle of lower eye. Dorsal 62-67. Anal 49-53. Right pectoral $\frac{1}{3}$ to $\frac{2}{5}$,

left $\frac{2}{7}$ length of head. 100 to 110 scales in a longitudinal series. Grayish, with numerous small dark spots; a black spot on right pectoral.

S. Africa.

Two specimens, 100 and 135 mm. in total length from Mossel Bay and Durban; the latter had been recorded by me as *Solea bleekeri*.

2. SYNAPTURA.

Synaptura, Cantor, Cat. Malay Fish. p. 222.

Form oval or elongate. Scales small, ctenoid on right side, cycloid or feebly ctenoid on left. Dorsal and anal fins continuous with the caudal; pectorals well developed. Lower lip fringed. Anterior nostril of eyed side at end of a tube which folds backwards; posterior nostril covered by a flap. Anterior nostril of blind side surrounded by a fringed flap, much developed behind and covering a naked groove.

Indian Ocean; one species from Natal.

SYNAPTURA MARGINATA.

Synaptura marginata, Bouleng. Mar. Inv. S. Afr. I, 1902, p. 11, pls. ii and iii, fig. 1.

Synaptura ciliata, Gilchr. Mar. Inv. S. Afr. III, 1905, p. 14, pl. xxxiv.

Depth of body $2\frac{1}{3}$ to $2\frac{2}{3}$ in the length, length of head 5. Eyes small, separated by a scaly interspace; upper in advance of lower; angle of mouth below middle of lower eye. Dorsal 71-76. Anal 57-60. Pectorals equal, or the right a little longer, $\frac{1}{4}$ to $\frac{2}{7}$ length of head. Small filaments scattered on body. 100 to 110 scales in a longitudinal series. Grayish or brownish, uniform or with small dark spots; fins with a white edge.

S. Africa.

Here described from the type of the species from Algoa Bay, an example of *S. ciliata* (Durban, Gilchrist) and two more from Durban, 165 and 225 mm. long.

I have compared this species with *S. commersoniana*, Cant. the type species of the genus and I regard them as strictly congeneric. It has been stated that in *S. commersoniana* the right posterior nostril is tubular, but the so-called tube has no aperture and the nostril opens at its base on the under side.

3. AUSTROGLOSSUS, gen. nov.

(type SYNAPTURA PECTORALIS, Kaup).

Form elongate, tapering posteriorly. Scales very small, ctenoid. Dorsal and anal fins continuous with the caudal; pectorals well developed. Lips not fringed; mouth strongly curved on blind side. Anterior nostril of eyed side tubular; posterior patent, between the eyes. Anterior nostril of blind side in a short tube, not surrounded by a flap.

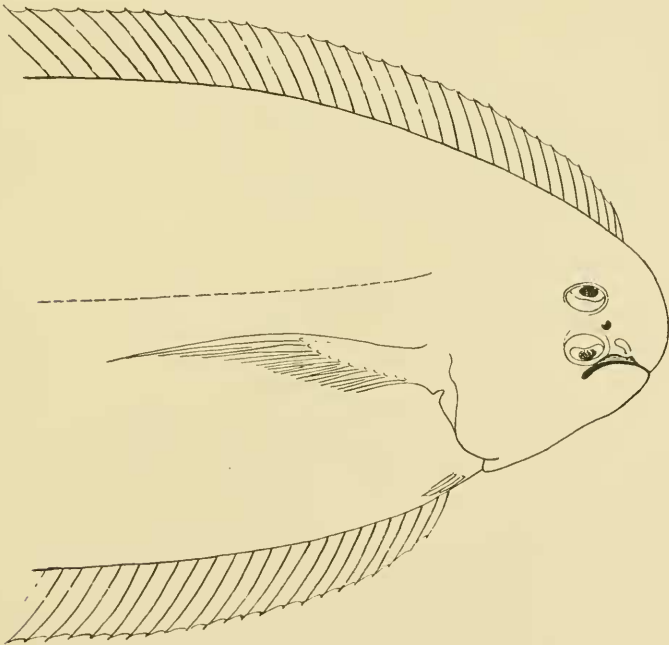
South Africa; one species from Natal.

Synaptura microlepis, Bleek. from the Cape also belongs to this genus.

AUSTROGLOSSUS PECTORALIS.

Synaptura pectoralis, Kaup, Arch. f. Nat. 1858, p. 96; Boulenger, Mar. Inv. S. Afr. I, 1902, p. 3.

TEXT-FIG. 4.



AUSTROGLOSSUS PECTORALIS.

Depth of body $3\frac{1}{4}$ to $3\frac{1}{2}$ in length, length of head $5\frac{2}{3}$ to 7. Eyes small, separated by a scaly interspace; angle of mouth below middle of lower eye. Dorsal 95-110. Anal 80-95. Right pectoral much longer than head, about 3 times as long as left. 150 to 175 scales in a longitudinal series. Brownish, with or without small darker spots; right pectoral blackish.

S. Africa.

Several examples up to 470 mm. including two from Durban.

4. ZEBRIAS.

Zebrias, Jord. and Synder, Proc. U.S. Nat. Mus. XXXI, 1907, p. 232.

Form oval. Scales small, ctenoid. Dorsal and anal fins continuous with the caudal. Pectoral small, especially the left; opercular membrane joined to upper edge of pectoral fin. Mouth moderately curved; lips not fringed. Anterior nostril of eyed side a short tube; posterior in front of lower eye; nostrils of blind side inconspicuous.

India to Japan; one species from Natal.

ZEBRIAS REGANI.

Synaptura regani, Gilchr. Mar. Inv. S. Afr. IV, 1908, p. 160, pl. xlv.

Depth of body $2\frac{1}{2}$ to $2\frac{2}{3}$ in the length, length of head $5\frac{1}{2}$. Eyes contiguous; angle of mouth below anterior part of lower eye. Dorsal 68-70. Anal 56-59. Right pectoral about as long as eye. 82 to 88 scales in a longitudinal series. Grayish, with 13 pairs of dark brown cross bands extending to edge of fins; caudal blackish posteriorly, with oblong white spots.

Natal, off mouth of Umhlanga River, 22-26 fathoms.

A specimen of 125 mm. examined.

5. ÆSOPIA.

Æsopia (Kaup), Günth. Cat. Fish. IV, p. 487 (1862).

Similar to *Zebrias*, but scales cycloid and first dorsal ray free, swollen, papillose, produced.

A single species.

ÆSOPIA CORNUTA.

Æsopia cornuta, Kaup, Arch. f. Nat, 1858, p. 95.

Synaptura cornuta, Day, Fish. India, p. 430, pl. xciv, fig. 4.

Very similar to *Z. regani* in form and coloration. Dorsal 69-79. Anal 61-66. 90 to 100 scales in a longitudinal series.

S. Africa to Japan.

Total length 150 mm.

Family 2. CYNOGLOSSIDÆ.

Eyes on the left side. Vertical fins confluent; no pectoral fins; pelvic fin of blind side present, 4-rayed, median.

The two genera represented on the coast of Natal may be distinguished as follows:

Lips fringed.....1. PARAPLAGUSIA.

Lips not fringed.....2. CYNOGLOSSUS.

1. PARAPLAGUSIA.

Paraplagusia, Bleek. Atl. Ichth. VI, p. 26 (1866).

Form elongate, ovate. Snout hooked; lips fringed. Scales small; 2 or 3 lateral lines on left side.

1. PARAPLAGUSIA MARMORATA.

Plagusia marmorata (Bleek.), Günth. Cat. Fish. IV, p. 491 (1862); Day, Fish. India, p. 431, pl. xcv, fig. 1 (1878).

Paraplagusia marmorata, Bleek. Atl. Ichth. VI, p. 28, Pleuron. pl. xv, fig. 5 (1866).

Plagusia marmorata, var. *africana*, Gilchr. Mar. Inv. S. Afr. IV, 1908, p. 163, pl. xlvii.

Depth of body $3\frac{1}{2}$ to 4 in the length, length of head 4 to $4\frac{1}{2}$. Snout rounded, as long as head behind lower eye; rostral hook rather long, its posterior edge about equal to length of snout; interorbital width equal to or less than diameter of eye; eyes small, upper in advance of lower; angle of mouth below posterior part of lower eye. Dorsal 99-106. Anal 75-86. Scales ctenoid, about 100 to 110 in a longitudinal series; two lateral lines on left side, separated by 16 to 19 series of scales; no distinct lateral line on right side. Brownish, spotted and marbled with darker.

Indian Ocean and Archipelago.

Total length 250 mm.

2. PARAPLAGUSIA ROBINSONI.

Plagusia robinsoni, Regan, Ann. Durban Mus. vol. ii, 1919, p. 203, fig. 6.

Closely related to *P. marmorata*, but snout pointed, as long as head behind upper eye, and rostral hook shorter, its inner edge much less than length of snout. Dorsal 109-110. Anal 82-83.

Durban.

Total length 240 mm. A second specimen of 155 mm. is essentially similar to the type.

2. CYNOGLOSSUS.

Cynoglossus (Ham. Buch.), Günth. Cat. Fish. IV, p. 492 (1862).

Form elongate, ovate. Snout hooked; lips not fringed. Scales small; 2 or 3 lateral lines on left side.

West Africa; Indo-Pacific.

Synopsis of the Species.

- I. Two lateral lines on both sides; scales ctenoid on left side, cycloid on right. Angle of mouth nearer to gill-opening than to end of snout; eyes separated by an interspace. D. 118. A. 92. Scales 84-88, 12 between lateral lines..... 1. *attenuatus*.
- II. Two lateral lines on left side only; scales ctenoid on both sides.
 - A. Angle of mouth nearer to gill-opening than to end of snout; eyes separated by an interspace. D. 102-110. A. 82-86. Scales 85-90, 13 or 14 between lateral lines.
 2. *lida*.
 - B. Angle of mouth nearer to end of snout than to gill-opening; eyes contiguous.
 - Depth 4 to $4\frac{1}{2}$ in length. D. 105-107. A. 82-84. 14 scales between lateral lines..... 3. *gilchristi*.
 - Depth 3 in length. D. 102. A. 85. 10 scales between lateral lines..... 4. *ecaudatus*.

1. CYNOGLOSSUS ATTENUATUS.

Cynoglossus attenuatus, Gilchr. Mar. Inv. S. Afr. III, 1905, p. 11. pl. xxix.

Depth of body 4 in length, length of head 5. Snout $\frac{2}{5}$ length of head; interocular width less than diameter of eye, which is 10 in length of head; angle of mouth below posterior edge of lower eye, nearer to gill-opening than to end of snout. Posterior nostril between eyes. Dorsal 118 (103). Anal 92 (90). Scales ctenoid on left side, cycloid on right, 84 to 88 in a longitudinal series. Two lateral lines on both sides, 12 series of scales between them.

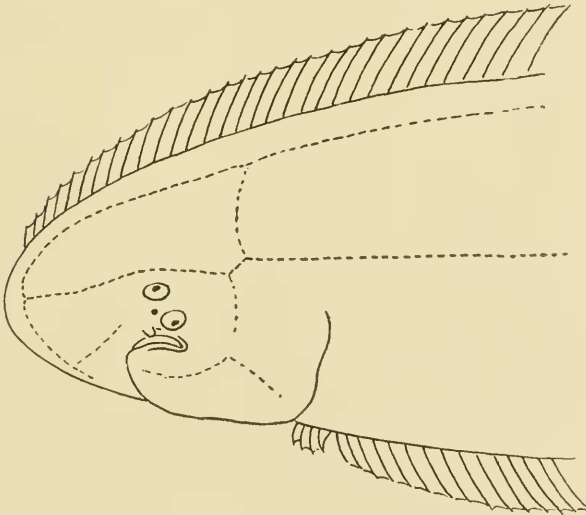
Natal.

Here described from a specimen 225 mm. in total length from off the mouth of the Tugela; depth 24 fathoms.

2. CYNOGLOSSUS LIDA.

Cynoglossus lida (Bleek.), Günth. Cat. Fish. IV, p. 498 (1862);
Bleek. Atl. Ichth. VI, p. 36, Pleuron. pl. xii, fig. 2 (1866);
Day, Fish. Ind. p. 436, pl. xcvii, fig. 3 (1878).

TEXT-FIG. 5.



CYNOGLOSSUS LIDA.

Depth of body 4 to $4\frac{1}{2}$ in length, length of head $4\frac{1}{3}$ to 5. Snout $\frac{2}{5}$ length of head or more; interocular width less than diameter of eye, which is about 10 in length of head; angle of mouth below posterior edge of lower eye, nearer gill-opening than end of snout. Posterior nostril between eyes. Dorsal 102-110. Anal 82-86. Scales ctenoid on both sides; 85 to 90 in a longitudinal series. Two lateral lines on left side; 13 or 14 series of scales between them; no distinct lateral line on right side. Grayish or brownish. Total length 180 mm.

Coasts of India and Malay Archipelago; two specimens from Durban are the first recorded from Natal.

3. CYNOGLOSSUS GILCHRISTI, nom. nov.

Cynoglossus brachycephalus (non Bleek.), Gilchr. Mar. Inv. S. Afr. III, 1905, p. 12, pl. xxx.

Depth of body 4 to $4\frac{1}{2}$ in length, length of head $5\frac{1}{2}$. Snout less than $\frac{1}{3}$ length of head; eyes contiguous, diameter 6 to $6\frac{1}{2}$ in length of head; angle of mouth below middle of lower eye, nearer end of snout than gill-opening. Dorsal 105-107. Anal 82-84. Scales ctenoid on both sides, 76 in a longitudinal series. Two lateral lines on left side; 14 series of scales between them; no lateral line on right side. Pale brown, spotted and marbled with darker; fins with a series of large black spots.

Natal; off mouth of Umhlanga R., 22-26 fathoms.

Here described from a specimen of 145 mm.

4. CYNOGLOSSUS ECAUDATUS.

Cynoglossus acaudatus, Gilchr. Mar. Inv. S. Afr. IV, 1908, p. 162, pl. xlvi.

Resembles *C. gilchristi* in the short snout and contiguous eyes, but is less elongate. Depth 3 in length. Dorsal 102. Anal 85. 63 to 65 scales in a longitudinal series, 10 between lateral lines. Upper lateral line not developed on posterior third of body.

Natal.

In the types (three specimens) a rayless membrane connected the last rays of dorsal and anal.